STATE OF GEORGIA
STATE ROAD & TOLLWAY AUTHORITY

PROJECT SUMMARY REPORT

Fulton County

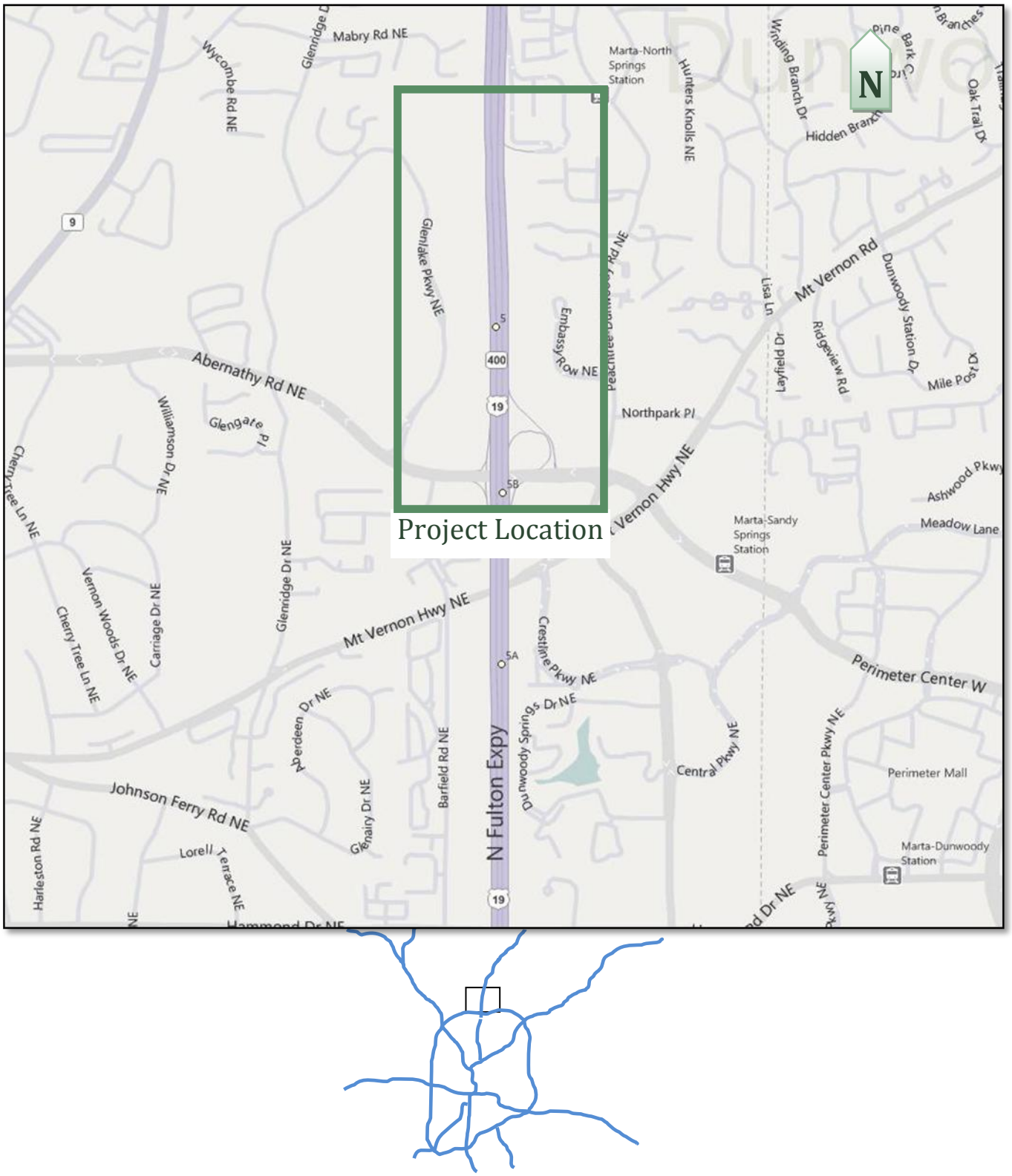
Abernathy Road Northbound On-Ramp Improvements
at SR 400

Federal Route No.: US 19
State Route No.: SR 400

City of Sandy Springs

December 7, 2010

Abernathy Road Northbound On-Ramp at SR 400



Location Sketch | Not To Scale

ROADWAY DESIGN OVERVIEW

Route Number

Georgia 400 (SR 400) at Abernathy Road

Location

The project is located in Fulton County at the interchange of SR 400 and Abernathy Road.

Project Description

The interchange at Abernathy Road and SR 400 is located in Fulton County, within the City of Sandy Springs. Situated approximately 1 mile north of the system interchange of I-285 and SR 400 and to the west of the Perimeter Center area, the northbound on-ramp of the interchange at Abernathy Road serves a large number of drivers traveling northbound toward Alpharetta every day.

The intersection of Abernathy Road and the northbound on-ramp is a signalized intersection, positioned between the SR 400 overpass and the heavily traveled intersection of Peachtree-Dunwoody Road. With approximately 500 feet between the Peachtree-Dunwoody Road intersection and the on-ramp, westbound traffic utilizes two right-turn lanes to access the northbound ramp. The outside, right-turning lane is yield controlled, while the inside lane is signalized. Eastbound traffic is provided with a signalized, dual left-turning movement onto the ramp.

From the intersection with Abernathy Road, the concrete on-ramp runs approximately 1,600 feet to the gore of the taper-type entrance onto SR 400. The initial width of two lanes gradually tapers down to one lane before merging into the freeway. The alignment of the ramp runs between the northbound off-ramp loop on its left and the Marta rail line on its right. Between these two features, there is a pinch point approximately 400 feet north of the intersection with Abernathy Road, where any future changes to the existing design would require extensive redesign and coordination. Beyond this point, the ramp runs unhindered and merges into the northbound lanes of SR 400 with an 800-foot, 50:1 taper.

At the point where the northbound on-ramp merges into SR 400, the freeway consists of four, 12-foot concrete lanes with an asphalt outside shoulder. Guardrail runs along various portions of the freeway shoulder to protect drivers from drainage structures and adverse slopes. The freeway passes beneath the Marta flyover bridge before reaching the subsequent northbound on-ramp for the Marta station.

The Abernathy Road northbound on-ramp performs poorly during peak hours, when heavy traffic is not able to smoothly merge onto SR 400. The taper-type entrance condition and the relatively short storage length of the on-ramp cause vehicles to queue along the entire length of the ramp, which compromises the operation of the traffic signal at Abernathy Road. In turn, this causes further delays at the other interchange ramps as well as at the intersection with Peachtree-Dunwoody Road.

This project intends to extend the on-ramp approximately 2,700 feet using an auxiliary, parallel fifth lane with an 840-foot, 70:1 taper at its terminus. The proposed project would allow greater distance for on-ramp vehicles to merge into the SR 400 traffic and allow greater queuing distance along the ramp. This additional queuing distance would prevent

spillback into the Abernathy Road intersection. The interstate gore would remain in its existing location and the newly added fifth lane would extend beyond the Marta flyover bridge and merge into the existing travel lanes before the subsequent on-ramp to the north.

Widening of the concrete ramp would begin at the location where the existing ramp begins to taper into the existing four lanes of SR 400. The triangular, wedge-shaped portion of concrete along the taper would be saw cut and removed. In its place, a 12-foot concrete lane would be built with a full-depth asphalt shoulder. Full-depth shoulders are required along this area of SR 400 because the shoulders are regularly utilized by Marta buses. The concrete widening would be built with a constant width to the end of the construction, where it would tie into the existing asphalt shoulder. By striping the merging taper, flexibility would be provided for any future widening construction in this area.

There are additional considerations to note that would affect construction of these proposed changes. The limits of construction are expected to be completely contained within the existing right of way, eliminating the need to purchase right of way or easements. V-gutter sections may be required along some segments of roadway to minimize cut slope impacts. Portions of guardrail would need to be replaced and possibly extended depending on the slopes of the newly constructed embankment. Additionally, several culverts along SR 400 would need to be extended where the freeway is widened or, alternately, special headwalls would need to be constructed. There are no anticipated complications associated with widening the freeway beneath the Marta flyover bridge since a generous clear width is provided at the underpass.

By providing drivers with an extended merging distance and additional storage space along the on-ramp, congestion along the Abernathy Road northbound on-ramp will be alleviated.

Existing Right of Way

SR 400:	330 feet to 650 feet

Estimated Project Length

2,700 feet along the Abernathy Road northbound on-ramp and SR 400

PDP Class

Major Interchange

Functional Class

SR 400:	Urban Freeway/Expressway
Abernathy Road:	Urban Minor Arterial Street

Anticipated Design Considerations

- Concrete and asphalt pavement removal
- Paved and grassed ditches to be relocated
- Culvert extensions required
- V-gutter required to limit cut slopes in some areas

Design Speed

SR 400: 70

Abernathy Road: 45

Potential Typical Section

SR 400:

- The four existing lanes along SR 400 will be widened to a proposed five lanes with a full-depth, 12-foot shoulder

Abernathy Northbound On-Ramp:

- No construction required

Access Types

Limited Access:

- SR 400

By Permit:

- Abernathy Road

Traffic Control During Staging

Stage Construction – Maintain traffic on existing roadway and ramp while constructing widening.

Right of Way Requirements

It is the project intent to contain the construction within the existing right of way with the use of temporary easements where necessary.

TRAFFIC DESIGN OVERVIEW

Traffic – Existing Conditions

SR 400 is a major north-south freeway in the Atlanta region. Commuters utilize the road to commute to/from the Perimeter Community Improvement District (CID), downtown Atlanta, and other employment centers on a daily basis. Generally the travel patterns yield a heavier southbound demand in the a.m. peak period and returning northbound demand during the p.m. peak period; however, volumes throughout the day are quite high on this limited-access roadway. According to the latest Georgia Department of Transportation (DOT) traffic count data, in 2009, SR 400 had an annual daily traffic (ADT) rate of 179,120 just north of Abernathy Road.

Multiple employment centers and major retail developments located around the Abernathy Road interchange generate heavy traffic demand along the Abernathy Road corridor during much of the day. Operational deficiencies affecting the northbound on-ramp occur predominantly during the p.m. peak period. During the p.m. peak period, the majority of vehicles are destined for locations northbound on SR 400. This high demand on the northbound Abernathy Road ramp combines with SR 400, which is already operating at or near capacity, to create an operational deficiency at the merge point. The Abernathy Road underpass has an ADT rate of 44,170 and the northbound ramp has an ADT rate of 16,600.

Existing Traffic Control

With high volumes throughout the corridor, most of the intersections within the vicinity of the interchange are signalized. Both ramp intersections are signalized with only the right-turning movement from the SR 400 northbound to Abernathy Road off-ramp operating as a free movement. Additionally, all turning movements are protected at the signalized intersections, including the westbound right turns at the SR 400 northbound on-ramp.

Accident Data – Abernathy Road

The short merging distance at the merging location, combined with heavy congestion, creates a hazardous location for motorists. At merge locations, similar to the one discussed in this report, sideswipe and rear-end accidents are prevalent. Sideswipe accidents occur when vehicles force into the through lanes, often missing vehicles within the motorist's blind spot, or when a vehicle fails to yield for the merging motorist. The rear-end accidents that occur are typically caused by motorists failing to notice a stopped vehicle because they are looking for merge locations.

In addition to accidents at merging locations, congestion created on Abernathy Road from ramp queues creates a different set of hazards. Drivers in congestion are more likely to be distracted or to take undue risks when performing maneuvers such as changing lanes or judging clearance needed for left turns. This results in additional rear-end, sideswipe, and typically more dangerous, angle accidents.

PROJECT OVERVIEW

Utilities

Coordination will be done with utility companies during design development. Known and anticipated utilities in the corridor include:

City of Atlanta Water

Fulton County Sewer

Atlanta Gas Light

AT&T

Georgia Power Distribution

Comcast

Verizon Communications

Georgia DOT ATMS

City of Sandy Springs Interconnect

Schedule

Design	
Concept	4 Months
Preliminary Plans	4 Months
Environmental (GEPA)	8 Months (Concurrent with Concept and Preliminary)
Final Plans	4 Months (Concurrent with Right of Way Acquisition)
Contracts	4 Months
Estimated Letting Date	16 Months from NTP
Construction	10 Months
Project Complete	26 – 28 Months from NTP

Estimated Cost

Item	Subtotal Cost	Cost
Reimbursable Utilities		$50,000.00
Construction	$1,402,468.92	
E&I (6%)	$84,148.14	
Total Construction		$1,486,617.06
Design		$180,000.00
Total Project Cost		$1,716,617.06

Permits Required

An Interchange Modification Report may be required with the Federal Highway Administration due to relocation of an on-ramp merge point.

Anticipated Level of Environmental Analysis

Compliance with the Georgia Environmental Protection Act (GEPA)

Level of Public Involvement

Public Involvement Open House

Time-Saving Procedures Appropriate

Yes (X) No ( )

Design Exceptions Required

None Anticipated

Alternates Considered

No-Build

Attachments

1. Design Sketch
2. Cost Estimate

ATTACHMENT 1

DESIGN SKETCH

Abernathy Road Northbound On-Ramp Improvements at SR 400

400

ABERNATHY RD NE

BEGIN ASHPALT SHOULDER

SAWCUT AND REMOVE EXCESS CONCRETE
BEGIN CONCRETE WIDENING

SANDY SPRINGS GEORGIA

STATE ROAD & TOLLWAY AUTHORITY
SRTA

GDOT
Georgia Department of Transportation

SH 1

W
S
N
E

SCALE IN FEET
0 100 200

Abernathy Road Northbound On-Ramp Improvements at SR 400

400

BEGIN 50:1 LANE TAPER
FROM 2 LANES
TO 1 LANE

END 50:1 LANE TAPER
BEGIN AUXILARY
LANE WIDENING

SANDY SPRINGS
GEORGIA

STATE ROAD & TOLLWAY AUTHORITY
SRTA

GDOT
Georgia Department of Transportation

SH 2

W
S
N
E

SCALE IN FEET
0 100 200

Abernathy Road Northbound On-Ramp Improvements at SR 400

400

END 1500' AUXILARY LANE
BEGIN 70:1 STRIPED TAPER

END 70:1 TAPER
END CONSTRUCTION

END ASPHALT SHOULDER

SANDY SPRINGS GEORGIA

STATE ROAD & TOLLWAY AUTHORITY
SRTA

GDOT
Georgia Department of Transportation

SH 3

W
S
N
E

SCALE IN FEET
0 100 200

ATTACHMENT 2

COST ESTIMATE

CONSTRUCTION COST ESTIMATE

Project: Abernathy Road NB On-Ramp Improvements at SR 400
Project No.: 0 Prepared by: ARCADIS
County: FULTON COUNTY Last Modified:

ITEM NO.	ITEM	UNIT	QUANTITY	UNIT PRICE	COST
	ROADWAY ITEMS				
150-1000	TRAFFIC CONTROL (PROJECT NO. CSMSL-0009-00(159) & CSMSL-0009-00(160))	LS	LUMP	$200,000.00	$200,000.00
207-0203	FOUND BKFILL MATL, TP II	CY	20	$37.36	$747.20
210-0100	GRADING COMPLETE (PROJECT NO. CSMSL-0009-00(159) & CSMSL-0009-00(160))	LS	LUMP	$350,000.00	$350,000.00
310-1101	GR AGGR BASE CRS, INCL MATL	TN	6860	$14.96	$102,625.60
402-3121	REC ASPH CONC 25mm SUPERPAVE, GP 1 OR 2, INCLUDE BIT MATL & H LIME	TN	1680	$53.81	$90,400.80
402-3190	REC ASPH CONC 19mm SUPERPAVE, GP 1 OR 2, INCLUDE BIT MATL & H LIME	TN	1045	$57.93	$60,536.85
402-4510	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL POLYMER-MODIFIED BIT	TN	315	$63.29	$19,936.35
413-1000	BITUM TACK COAT	GL	2000	$1.72	$3,440.00
430-0220	PLAIN PC CONC PVMT, CL 1 CONC, 12 INCH THK	SY	4110	$40.00	$164,400.00
431-1000	GRIND CONC PVMT	SY	2400	$2.40	$5,760.00
441-0204	PLAIN CONC DITCH PAVING, 4 IN	SY	325	$24.70	$8,027.50
441-4020	CONC VALLEY GUTTER, 6 IN	SY	250	$35.28	$8,820.00
452-1000	FULL DEPTH SLAB REPLACEMENT	CY	24	$254.56	$6,109.44
461-1000	RESEALING ROADWAY JOINTS AND CRACKS	LF	1200	$1.40	$1,680.00
500-9999	CLASS B CONC, BASE OR PVMT WIDENING	CY	100	$163.61	$16,361.00
550-1240	STORM DRAIN PIPE, 24 IN, H 1-10	LF	30	$40.00	$1,200.00
550-1360	STORM DRAIN PIPE, 36 IN, H 1-10	LF	60	$50.00	$3,000.00
550-8000	EXTEND BOX CULVERT	LS	1	$40,000.00	$40,000.00
550-4224	FLARED END SECTION 24 IN, STORM DRAIN	EA	1	$555.85	$555.85
550-4236	FLARED END SECTION 36 IN, STORM DRAIN	EA	2	$934.90	$1,869.80
609-1000	REMOVE ROADWAY SLAB	SY	260	$31.37	$8,156.20
611-3010	RECONSTR DROP INLET, GROUP 1	EA	2	$1,263.06	$2,526.12
611-3030	RECONSTR STORM SEW MANHOLE, TYPE 1	EA	1	$1,281.70	$1,281.70
620-0100	TEMPORARY BARRIER, METHOD NO. 1	LF	3500	$24.48	$85,680.00
632-0003	CHANGEABLE MESSAGE SIGN, PORTABLE, TYPE 3	EA	3	$6,864.58	$20,593.74
641-1100	GUARDRAIL, TP T	LF		$42.45	
641-1200	GUARDRAIL, TP W	LF	1940	$14.56	$28,246.40
641-5001	GUARDRAIL ANCHORAGE, TP 1	EA	2	$636.40	$1,272.80
641-5012	GUARDRAIL ANCHORAGE, TP 12	EA	2	$2,275.34	$4,550.68
???	MISC RETAIING WALLS	LS	LS	$60,000.00	$60,000.00
???	DROP INLET	EA	5	$2,112.83	$10,564.15
668-4300	STORM SEWER MANHOLE, TP 1	EA	2	$1,958.32	$3,916.64
	EROSION CONTROL				
163-0232	TEMPORARY GRASSING	AC	1	$296.36	$296.36
163-0240	MULCH	TN	36	$144.95	$5,218.20
163-0300	CONSTRUCTION EXIT	EA	2	$922.26	$1,844.52
163-0550	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	EA	26	$142.47	$3,704.22
165-0030	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	LF	7400	$0.68	$5,032.00

165-0101	MAINTENANCE OF CONSTRUCTION EXIT	EA	3	$441.53	$1,324.59
165-0105	MAINTENANCE OF INLET SEDIMENT TRAP	EA	26	$53.08	$1,380.08
167-1000	WATER QUALITY MONITORING AND SAMPLING	EA	1	$412.56	$412.56
167-1500	WATER QUALITY INSPECTIONS	MO	12	$511.37	$6,136.44
171-0030	TEMPORARY SILT FENCE, TYPE C	LF	7400	$2.84	$21,016.00
700-6910	PERMANENT GRASSING	AC	2	$669.77	$1,339.54
700-7000	AGRICULTURAL LIME	TN	4	$52.05	$208.20
700-7010	LIQUID LIME	GL	5	$16.03	$80.15
700-8000	FERTILIZER MIXED GRADE	TN	2	$400.18	$800.36
700-8100	FERTILIZER NITROGEN CONTENT	LB	87	$2.24	$194.88
716-2000	EROSION CONTROL MATS, SLOPES	SY	1300	$0.94	$1,222.00
	SIGNING AND MARKING / SIGNAL ITEMS				
	SIGNING AND MARKING ITEMS	LS	LUMP	LUMP	$40,000.00

Subtotal Construction Cost	**$**	**1,402,468.92**
Engineering & Inspection (6%)	$	84,148.14
Total Construction Cost	**$**	**1,486,617.06**
Reimbursable Utilities	$	50,000.00
Design	$	180,000.00
Grand Total Project Cost	**$**	**1,716,617.06**